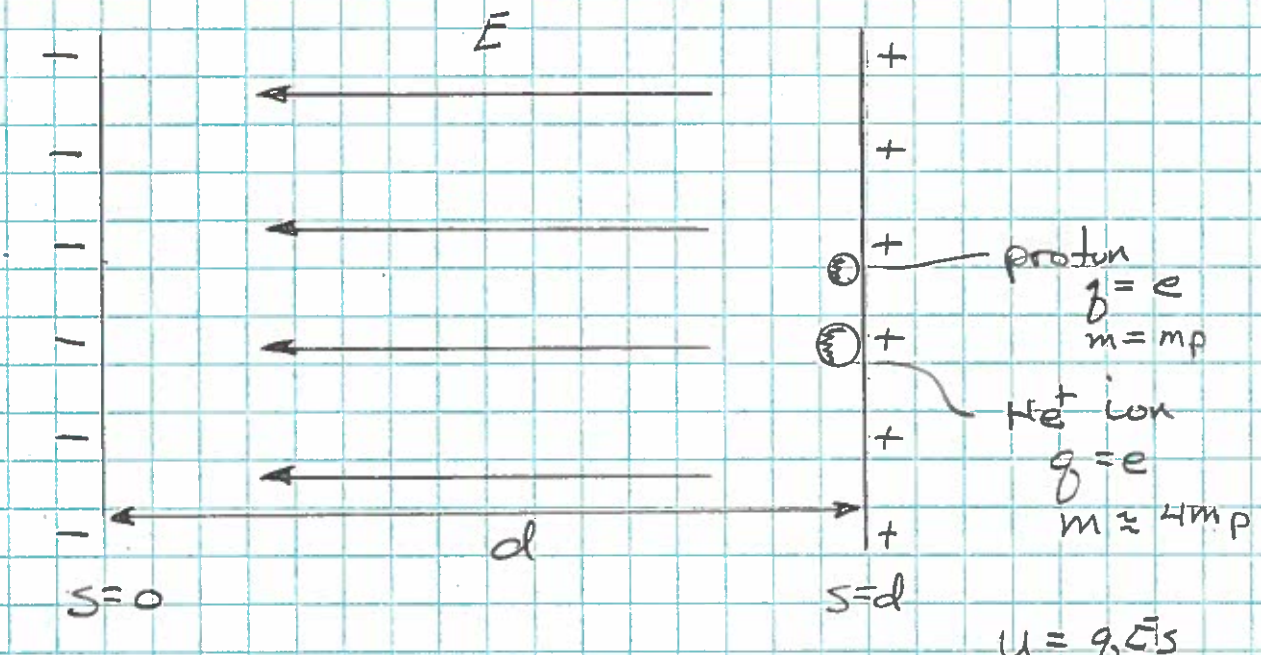

$U = qEs$

for either:

$$\Delta E_{mech} = \Delta K + \Delta U = 0$$

$$(K_f - K_i) + (U_f - U_i) = 0$$

$$\tfrac{1}{2} m v_f^2 - qEs = 0$$

$$v_f = \sqrt{\frac{2qEd}{m}}$$

For proton

$$v_f = \sqrt{\frac{2eEd}{m_p}} = 50{,}000 \text{ m/s}$$

For He^+

$$v_f = \sqrt{\frac{2eEd}{4m_p}} = \frac{1}{2}(v_f)_{proton}$$

$$\therefore \quad (v_f)_{He^+} = \underline{25{,}000 \text{ m/s}}$$